

1. A method of treating a subterranean zone penetrated by a well bore comprising the steps of:

(a) preparing an environmentally benign gelled and cross-linked viscous treating fluid that delayingly breaks into a low viscosity fluid comprising water, a viscosity producing polymer, a boron cross-linking agent for cross-linking said polymer, and a delayed cross-link delinker that chelates the boron and breaks said treating fluid into a low viscosity fluid selected from the group consisting of polysuccinamide and polyaspartic acid; and

(b) introducing said treating fluid into said subterranean zone.

2. The method of claim 1 wherein said water is selected from the group consisting of fresh water and salt water.

3. The method of claim 1 wherein said viscosity producing polymer is guar, a guar derivative, a cellulose derivative or a biopolymer selected from the group consisting of guar, hydroxypropylguar, carboxymethylhydroxypropylguar, carboxymethylguar, hydroxyethylcellulose, hydroxyethylcellulose grafted with glycidol or vinyl phosphonic acid, carboxymethylcellulose, carboxymethylhydroxyethylcellulose, xanthan and succinoglycan.

4. The method of claim 1 wherein said viscosity producing polymer is a substantially fully hydrated depolymerized polymer.

5. The method of claim 1 wherein said viscosity producing polymer is a substantially fully hydrated depolymerized guar or cellulose derivative polymer selected from the group consisting of hydroxypropylguar, carboxymethylhydroxypropylguar,

carboxymethylguar, hydroxyethylcellulose, carboxymethylcellulose and carboxymethylhydroxyethylcellulose.

6. The method of claim 1 wherein said viscosity producing polymer is a substantially fully hydrated depolymerized hydroxypropylguar.

7. The method of claim 1 wherein said viscosity producing polymer is present in said treating fluid in an amount in the range of from about 0.12% to about 2.5% by weight of said water therein.

8. The method of claim 1 wherein said boron cross-linking agent for cross-linking said polymer is selected from the group consisting of boric acid, disodium octaborate tetrahydrate, sodium diborate, pentaborates and minerals containing boron that release the boron upon hydrolysis.

9. The method of claim 1 wherein said boron cross-linking compound is boric acid.

10. The method of claim 1 wherein said boron cross-linking agent is present in said treating fluid in an amount in the range of from about 0.0025% to about 0.1% by weight of said water therein.

11. The method of claim 1 wherein said delayed cross-link delinker is polysuccinamide.

12. The method of claim 1 wherein said delayed cross-link delinker is present in said treating fluid in an amount in the range of from about 0.1% to about 1% by weight of said water therein.

13. The method of claim 1 which further comprises a pH adjusting compound for elevating the pH of said treating fluid.

14. The method of claim 13 wherein said pH adjusting compound is selected from the group consisting of sodium hydroxide, potassium hydroxide and lithium hydroxide.

15. The method of claim 13 wherein said pH adjusting compound is sodium hydroxide.

16. The method of claim 13 wherein said pH adjusting compound is present in said treating fluid in an amount in the range of from about 0.01% to about 1% by weight of said water therein.

17. The method of claim 1 wherein said treating fluid further comprises a buffer.

18. The method of claim 17 wherein said buffer is selected from the group consisting of sodium carbonate, potassium carbonate, sodium bicarbonate, potassium bicarbonate, sodium diacetate, potassium diacetate, sodium phosphate, potassium phosphate, sodium dihydrogen phosphate and potassium dihydrogen phosphate.

19. The method of claim 17 wherein said buffer is sodium carbonate.

20. The method of claim 17 wherein said buffer is present in said treating fluid in an amount in the range of from about 0.01% to about 0.25% by weight of said water therein.

21. The method of claim 1 wherein said treating fluid further comprises a surfactant for preventing the formation of emulsions between said treating fluid and subterranean formation fluids.

22. The method of claim 21 wherein said surfactant is selected from the group consisting of alkyl sulfonates, alkyl aryl sulfonates such as a salt of dodecylbenzene sulfonic acid, alkyl trimethylammonium chloride, branched alkyl ethoxylated alcohols, phenol-formaldehyde nonionic resin blends, cocobetaines, dioctylsodium sulfosuccinate, imodazolines, alpha olefin sulfonates, linear alkyl ethoxylated alcohols and trialkyl benzylammonium chloride.

23. The method of claim 21 wherein said surfactant is a salt of dodecylbenzene sulfonic acid.

24. The method of claim 21 wherein said surfactant is present in said treating fluid in an amount in the range of from about 0.01% to about 0.3% by weight of said water therein.

25. An environmentally benign viscous treating fluid that delayingly breaks into a low viscosity fluid comprising:

water;

a viscosity producing polymer;

a boron cross-linking agent for cross-linking said polymer; and

a delayed cross-link delinker that chelates the boron and breaks said treating fluid into a low viscosity fluid selected from the group consisting of polysuccinamide and polyaspartic acid.

26. The treating fluid of claim 25 wherein said water is selected from the group consisting of fresh water and salt water.

27. The treating fluid of claim 25 wherein said viscosity producing polymer is guar, a guar derivative, a cellulose derivative or a biopolymer selected from the group consisting of hydroxypropylguar, carboxymethylhydroxypropylguar, carboxymethylguar, hydroxyethylcellulose, hydroxyethylcellulose grafted with glycidol or vinyl phosphonic acid, carboxymethylcellulose, carboxymethylhydroxyethylcellulose, xanthan and succinoglycon.

28. The treating fluid of claim 25 wherein said viscosity producing polymer is a substantially fully hydrated depolymerized polymer.

29. The treating fluid of claim 25 wherein said viscosity producing polymer is a substantially fully hydrated depolymerized guar or cellulose derivative polymer selected from the group consisting of hydroxypropylguar, carboxymethylhydroxypropylguar, carboxymethylguar, hydroxyethylcellulose, carboxymethylcellulose, and carboxymethylhydroxyethylcellulose.

30. The treating fluid of claim 25 wherein said viscosity producing polymer is substantially fully hydrated depolymerized hydroxypropylguar.

31. The treating fluid of claim 25 wherein said viscosity producing polymer is present in said treating fluid in an amount in the range of from about 0.12% to about 2.5% by weight of said water therein.

32. The treating fluid of claim 25 wherein said boron cross-linking agent for cross-linking said polymer is selected from the group consisting of boric acid, disodium octaborate tetrahydrate, sodium diborate, pentaborates and any minerals containing boron that release the boron upon hydrolysis.

33. The treating fluid of claim 25 wherein said boron cross-linking compound is boric acid.

34. The treating fluid of claim 25 wherein said boron cross-linking agent is present in said treating fluid in an amount in the range of from about 0.0025% to about 0.1% by weight of said water therein.

35. The treating fluid of claim 25 wherein said delayed cross-link delinker is polysuccinamide.

36. The treating fluid of claim 25 wherein said delayed cross-link delinker is present in said treating fluid in an amount in the range of from about 0.1% to about 1% by weight of said water therein.

37. The treating fluid of claim 25 which further comprises a pH adjusting compound for elevating the pH of said treating fluid.

38. The treating fluid of claim 37 wherein said pH adjusting compound is selected from the group consisting of sodium hydroxide, potassium hydroxide and lithium hydroxide.

39. The treating fluid of claim 37 wherein said pH adjusting compound is sodium hydroxide.

40. The treating fluid of claim 37 wherein said pH adjusting compound is present in said treating fluid in an amount in the range of from about 0.01% to about 1% by weight of said water therein.

41. The treating fluid of claim 25 which further comprises a buffer.

42. The treating fluid of claim 41 wherein said buffer is selected from the group consisting of sodium carbonate, potassium carbonate, sodium bicarbonate, potassium bicarbonate, sodium diacetate, potassium diacetate, sodium phosphate, potassium phosphate, sodium dihydrogen phosphate and potassium dihydrogen phosphate.

43. The treating fluid of claim 41 wherein said buffer is sodium carbonate.

44. The treating fluid of claim 41 wherein said buffer is present in said treating fluid in an amount in the range of from about 0.01% to about 0.25% by weight of said water therein.

45. The treating fluid of claim 25 wherein said treating fluid further comprises a surfactant for preventing the formation of emulsions between said treating fluid and subterranean formation fluids.

46. The treating fluid of claim 45 wherein said surfactant is selected from the group consisting of alkyl sulfonates, alkyl aryl sulfonates such as a salt of dodecylbenzene sulfonic acid, alkyl trimethylammonium chloride, branched alkyl ethoxylated alcohols, phenol-formaldehyde nonionic resin blends, cocobetaines, dioctylsodium sulfosuccinate, imodazolines, alpha olefin sulfonates, linear alkyl ethoxylated alcohols and trialkyl benzylammonium chloride.

47. The treating fluid of claim 45 wherein said surfactant is a salt of dodecylbenzene sulfonic acid.

48. The treating fluid of claim 45 wherein said surfactant is present in said treating fluid in an amount in the range of from about 0.01% to about 0.3% by weight of said water therein.